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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,187	03/19/2004	Takashi Sato	122.1587	6776
21171	7590	12/01/2005		
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			EXAMINER BOLDA, ERIC L	
			ART UNIT	PAPER NUMBER
			3663	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/804,187

Applicant(s)

SATO ET AL.

Examiner

Eric Boldt

Art Unit

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/19/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 6-8, and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sulhoff (US Pat. No. 6,687,049).

With regard to claim 1, Sulhoff discloses in Fig. 13 a wavelength division multiplexed (WDM) optical amplifier with

- A first stage (76) optical amplifying unit
- A second stage (78) optical amplifying unit arranged in series with the first stage
- A common control unit (44). The control unit uses the optical signals from the input monitor (32) and output monitor (34) to maintain constant gain (automatic gain control). See 5th col. lines 51-63.
- A pumping light distribution function unit ((64) and (84)). The splitter (84) supplies pump light from pump (68) to the first stage optical amplifying unit and second stage amplifying unit.

Note that the clause "for receiving" "for... supplying" are essentially statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the

reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

With regard to claim 2, the pumping light distribution function unit comprises the splitter (84) and pump (68).

With regard to claims 6 and 8, the predetermined distribution ratio of the pumps can take a value to enable suppression of fluctuations of output due to ASE when the number of input wavelengths of the optical signal input rapidly decreases. Note that the clause "enabling..." is essentially a statement of intended or desired use. The limitation "able to change said distribution ratio" is easily met by the reference, since different values other than the exemplary 95% /5% splitting can be chosen. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

With regard to claim 3, Sulhoff discloses in Fig. 11 a wavelength division multiplexed (WDM) optical amplifier with

- A first stage (76) optical amplifying unit
- A second stage (78) optical amplifying unit arranged in series with the first stage
- A common control unit (44). The control unit uses the optical signals from the input monitor (32) and output monitor (34) to maintain constant gain (automatic gain control). The common control unit also supplies pumping light to the first and second stage optical amplifying units with a predetermined distribution ratio.
- A first pumping light source (68) for pumping the first stage optical amplifying unit
- A second pumping light source (70) for pumping the second stage optical amplifying unit

With regard to claim 7, more that two amplifiers in series may be used (15th col. lines 23-35).

With regard to claims 10 and 11, the optical amplifying medium forming each optical amplifying unit is a rare earth-doped fiber.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sulhoff as applied to claim 1 above and further in view of Drake (US Pat. No. 6,377,394).

With regard to claim 4, Sulhoff discloses all the elements of claim 4 except that pumping light distribution unit performs backward pumping on the first stage optical amplifying unit, and forward pumping on the second stage optical amplifying unit. However, Drake teaches in Fig. 1 a two stage optical amplifier with a pump distribution unit (26 and splitter above it) wherein the first stage is pumped at least in a backward direction (p_2) and the second stage is pumped in a forward direction (p_3). It would have been obvious to one skilled in the art (e. g. an optical engineer) to combine the backward pumping of the first stage and forward pumping of the second stage of Drake, with the two stage optical amplifier of Sulhoff, for the purpose of reducing amplified spontaneous emission noise.

With regard to claim 5, Drake teaches that it is desirable to operate the amplifier with a high pump power input to the first stage to maintain a low noise figure (4th col. lines 51-64). Note that the claimed clause "wherein said predetermined distribution ratio is made a value giving a gain increased near the upper limit where oscillation occurs in said first-stage optical amplifying unit so as to obtain a low noise figure" is essentially a statement of intended or desired use. Thus, the claim does not serve to patentably distinguish the claimed structure over that of the references.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sulhoff as applied to claim 8 above and further in view of Ohshima et al. (US Pat. App. Pub. 2001/0050805). Sulhoff discloses all features of the claim except that the distribution ratio control function unit is an optical attenuator able to change the intensity of the pumping light. However, Ohshima teaches in Fig. 5 an optical amplifier with a single pumping light source (62), and a distribution ratio control function unit comprising an optical splitter (63), and (variable) optical attenuators (53), (64), and (67), capable of changing the intensity of said pumping light. It would have been obvious to one skilled in the art (e. g. an optical engineer) to combine the variable optical attenuators for the pumps as in Ohshima, with the optical amplifier of Sulhoff, for the purpose of to prevent heat emitted by the pumping light source from adversely affecting the amplification medium. Note that the claimed clause "able to change said predetermined distribution ratio" is essentially a statement of intended or desired use. Thus, the claim does not serve to patentably distinguish the claimed structure over that of the references.

6. Note that the citations made herein are done so for the convenience of the applicant; they are in no way intended to be limiting. The prior art should be considered in its entirety.

Information Disclosure Statement

7. The information disclosure statement filed on March 19, 2004 has been considered by the Examiner.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fake et al., Bennett et al., Bao, Zahnley et al., Khatana et al., Lelic et al.

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104. The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EB

Eric Boldt


JACK KEITH
SUPERVISORY PATENT EXAMINER